HanAra Software

Grid Management with HanPrism

TNB Grid

TNB (Tenaga Nasional Berhad) is the largest electric utility in Malaysia, providing electricity to Malaysia's businesses, homes, and industries. TNB's Grid Division manages and operates the 132 kV, 275 kV, and 500 kV transmission network and 439 substations, focusing on efficient and intelligent electricity delivery.

Challenges

1. Interoperability

TNB Grid Division operators and engineers mainly monitor substation data through their engineering workstation (EWS). TNB needed to update their EWS to IEC 61850 standard communication in order to have greater insight into their substation behavior. IEC 61850 defines communication protocols to ensure interoperability between electronic devices in order to facilitate the protection, monitoring, metering, control, and automation of substations.

2. Lack of Enterprise Data Infrastructure

TNB lacked enterprise-wide data integration. TNB was unable to quickly and easily monitor its substation, linked by approximately 11,000 kilometers of transmission lines. Not only did TNB want to monitor all of its substations at a glance, but it also wanted added features such as alarms, analysis, metering, events, and maintenance information. TNB also needed an enterprise historian to collect and store data while also integrating with the EWS system.

HanPrism

In 2013, TNB installed an updated EWS System, called EWS-850, for the 132-kV Kajang Estate substations, TNB's first multi-vendor IEC 61850 substation. EWS-850 maximizes the utilization of substation data by monitoring substations at a glance for decision-making, engineering, operation and maintenance, and fault investigation.

In 2014, TNB Transmission headquarters installed HanPrism. HanPrism receives data from the EWS, creating a powerful and innovative data infrastructure that enables TNB to utilize its increasing pool of data to achieve operational excellence.

Benefits

1. Efficient Substation and Enterprise Level Monitoring

TNB chose HanAra solutions after a comprehensive comparison with other products, placing high importance on cost and services. With HanAra, TNB overcame its electronic device communication issues, enabling centralized data access for better and quicker analysis and diagnosis.

2. Analysis at All Layers

With HanAra solutions, TNB utilizes data for analysis at all levels of the organization and process. TNB accesses substation data at the station level, bay level, and process level. In addition, TNB views detailed information such as instrument condition, voltage, frequency, and power factor values. Finally, with the asset management feature, TNB manages substation primary and secondary information, including signals, status, alarms, and events through process mimics.

Through the enterprise solution, TNB uses the real-time interface to analyze current and historical trends quickly. With HanAra solutions, TNB improves the reliability and availability of all their facilities.

Challenges	HanPrism	Benefits
• IEC 61850 Standard usage • Data infrastructure for integration and enterprise-level monitoring	• Collect data from offshore data sources and store in a central server • Monitor real-time and historical data without data interruption • Quickly check and analyze data at any time	• Substation data following IEC Standards • Centralized historian server to manage and maintain multiple data sources • Powerful applications for monitoring and analysis